molten metal, the leg having a tendency to be combustible in the presence of oxygen, and non-combustible in the presence of an inert material;

first means for connecting the graphite leg to an overhead support structure, and second means for connecting the graphite leg to an object disposed in a bath of molten metal;

structure enclosing that portion of the graphite leg disposed in the bath of molten metal, including a ceramic sleeve telescopically enclosing the leg, the ceramic sleeve being resistant to the heat of molten metal;

third means forming a clearance between the graphite leg and the ceramic sleeve; and

an inert non-gaseous material disposed in said clearance to form a non-combustible barrier between the graphite leg and the molten metal.

14 16. A support as defined in claim 15, in which the inert material includes a nylon tape, and a coating of refractory cement mixed with boron nitride paint to form a gas-free environment between the graphite leg and the ceramic sleeve.

3 17. A support as defined in claim 16, in which the nylon tape is wrapped in a helical wrapping around the graphite leg.

6 18. A support as defined in claim 15, in which the lower end of the leg is capable of being connected to a pump housing.

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7 ~~18~~. A support suited for positioning a pump or similar device disposed in a bath of molten metal, beneath an overhead support structure disposed above the metal level of the bath; comprising:

a leg of a material capable of being penetrated by a gas, having an upper end and a lower end, the leg having a sufficient compressive strength to prevent an object from rising in molten metal, the leg having a tendency to be combustible in the presence of oxygen, and non-combustible in the presence of an inert gas;

first means for connecting the leg to an overhead support structure; and second means for connecting the leg to an object disposed in a bath of molten metal;

structure enclosing that portion of the leg disposed in the molten metal to form a sealed chamber, including a ceramic sleeve telescopically enclosing the leg, the ceramic sleeve being resistant to the heat of molten metal; and

a source of an inert gas, and means for introducing the gas into the sleeve to so penetrate the leg as to prevent it from burning when disposed in molten metal.

8 ~~20~~. A support as defined in claim 7 ~~19~~, in which the leg is formed of a graphite material.

9 ~~21~~. A support as defined in claim 7 ~~19~~, in which the gas is nitrogen.

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~~22~~. A support as defined in claim ~~19~~, in which the lower end of the leg is connected to a pump housing.

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~~23~~. A support as defined in claim ~~19~~, in which the leg has an axial passage, and including a source of an inert gas connected to said axial passage to impregnate the leg with the inert gas.

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~~24~~. A support suited for positioning a pump or other similar device disposed in a bath of molten metal, beneath an overhead support structure disposed above the metal level of the bath, comprising:

a graphite leg having an upper end and a lower end, the graphite having a sufficient compressive strength to prevent an object from rising in molten metal, the leg having a tendency to be combustible in the presence of oxygen, and non-combustible in the presence of an inert material, at

first means for connecting the graphite leg to an overhead support structure, and second means for connecting the graphite leg to an object disposed in a bath of molten metal; and

structure enclosing that portion of the graphite leg disposed in a bath of molten metal to form a barrier between the graphite leg and the molten metal including a ceramic sleeve having a lower end telescopically enclosing the leg, the ceramic sleeve being resistant to the heat of molten metal.

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~~25~~. A support as defined in claim ~~24~~, including structure in the opening in the pump housing for joining the leg to the pump housing and for preventing molten metal from entering the lower end of the ceramic sleeve.

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~~26~~. A support suited for positioning a pump having a housing disposed in a bath of molten metal, beneath an overhead support structure disposed above the metal level of the bath, comprising:

a pump housing having an opening;

a graphite leg having an upper end and a lower end, the graphite leg having a sufficient compressive strength to prevent the pump housing from rising in molten metal, the graphite leg having a tendency to be combustible in the presence of oxygen, and non-combustible in the presence of an inert material at such times as the graphite leg is disposed in a bath of molten metal;

first means for connecting the graphite leg to an overhead support structure, and second means for connecting the graphite leg in the opening in the pump housing; and

structure forming a barrier between the graphite leg and the molten metal including a ceramic sleeve telescopically enclosing the leg, the ceramic sleeve being resistant to the heat of molten metal.

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~~27~~. A support as defined in claim ~~26~~, in which the lower end of the graphite leg extends through the opening in the pump housing, and including a fastener threadably connected to the leg to join the leg to the pump housing.

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~~28~~. A support as defined in claim ~~26~~, in which the pump-housing opening has a frusto-conical configuration, and the graphite leg has a frusto-conical end mated with the opening in the pump housing.

REMARKS

Claims 13-28 remain in the case for consideration.

Claims 13-28 focus on a support leg having an internal graphite leg telescopically disposed within a ceramic sleeve.

In one embodiment of the invention, defined in claims 13, 14, 19-23, a graphite leg is defined as being sufficiently porous as to contain a gas. A source of nitrogen gas is then delivered inside the sleeve to impregnate the graphite leg, thus making it non-combustible.

Claims 1-14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Thut in view of Mordue et al and Weber et al. The Examiner suggests that Mordue teaches that a graphite leg protected by a refractory sleeve is commonly employed for construction of molten metal pump components. However, Mordue only states:

> "Although graphite can be protected from high temperature oxidation and erosion by various sleeves,